Oregon
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September 14, 2007 *Also Sent Via E-mail*

Mr. Robert J. Wyatt
Northwest Natural Gas Company
220 N.W. Second Avenue
Portland, OR 97209

Re: Proposed Groundwater Seepage Meter and Transition Zone Water Tidal Influence Study Scopes of Work
Northwest Natural Gas Company - Gasco Site
Portland, Oregon
ECSI #84

Dear Mr. Wyatt:

The Oregon Department of Environmental Quality (DEQ) has reviewed the following technical memorandums:

- "Proposed Groundwater Seepage Meter Deployment Scope of Work – Gasco Site," dated August 22, 2007 (Seepage Meter Scope); and
- "Proposed Transition Zone Water (TZW) Tidal Influence Study Scope of Work - Gasco Site," dated August 22, 2007 (TZW/Tidal Influence Study).

Anchor Environmental, LLC prepared both documents on behalf of the Northwest Natural Gas Company (NWNG).

The Seepage Meter Scope and TZW/Tidal Influence Study supplement the Offshore Field Sampling Approach[1,2] project (Offshore FSA) that NWNG is conducting to investigate manufactured gas plant (MGP) waste impacts and upland groundwater contamination in and beneath the Willamette River. The Offshore FSA is being done to support the Portland Harbor in-water remedial investigation and feasibility study being performed by the Lower Willamette Group (LWG). The overall objectives of the Offshore FSA are to collect groundwater, transition zone water (TZW), and sediment chemistry data, and subsurface geotechnical information along the shoreline and offshore of the NWNG Property and property owned by the Siltronic Corporation.

[1] Anchor Environmental, LLC, 2006, "Final Phase 1 Field Sampling Approach, GASCO Siltronic Groundwater Source Evaluation", September, a work plan prepared on behalf of the Northwest Natural Gas Company.
[2] Anchor Environmental, LLC, 2007, "Phase 1 Report and Phase 2 Field Sampling Approach, GASCO Siltronic Groundwater Source Evaluation", May, a report and work plan prepared on behalf of the Northwest Natural Gas Company.

The Seepage Meter Scope will expand on the assessments of groundwater discharge within river sediments offshore of the Gasco Site previously completed by the LWG. The TZW/Tidal Influence Study was developed by NWNG in response to DEQ's June 28, 2007 comments to the Phase 2 Offshore FSA. The primary objective of the TZW/Tidal Influence Scope is to assess the potential influence of river tidal fluctuations on TZW chemical concentrations.

DEQ approves the Seepage Meter Scope and TZW/Tidal Influence Study subject to the conditions listed below.

- A seepage meter should be located at sampling station GS-B5. This station is located at the base of slope above the navigation channel and coincides with the maximum detections of certain chemicals detected offshore of the NWNG Property during Step 1 of the Phase 2 Offshore FSA (e.g., naphthalene, toluene).
- An additional piezometer pore water sampler should be co-located with seepage meter GS-01SM. This will allow the potential influence of tidal fluctuations on TZW chemistry to be evaluated where the maximum concentrations of total, amenable, and free cyanide were detected during Step 1 of the Phase 2 Offshore FSA.

DEQ also has comments on the TZW/Tidal Influence Study that are intended to clarify our understanding and expectations regarding the scope of work, and provide feedback on the details of data acquisition and sample collection and analysis.

Proposed Monitoring Methods. Consistent with DEQ's comments to the Surface Water FSP[3], DEQ expects the TZW sampling approach to be modified so samples are collected at or near slack high tide and slack low tide, and during either the flood or ebb tides. DEQ considers the slack tide sampling to be of particular interest as it represents tidal extremes.

DEQ considers it essential to collect TZW chemistry data that are comparable to the results of sampling completed during Step 1 of the Phase 2 Offshore FSA. To achieve this objective, DEQ expects TZW samples collected during the tidal influence study to be analyzed for "total" concentrations of polycyclic aromatic hydrocarbons; total, amenable, and free cyanide; and iron.

The analyte list for TZW samples should be expanded to include common anions (chloride, bicarbonate, and sulfate) and cations (calcium, potassium, sodium, and magnesium) to further assess the potential for river water to penetrate into shallow sediments due to tidal fluctuations. Representative samples of river water should be collected and analyzed for common anions and cations during each of the slack high and slack low TZW/tidal influence sampling events for comparison to the corresponding TZW sample results. Surface water samples should be collected from within about 1-foot of the mudline using procedures documented in the Surface Water FSP. TZW and surface water samples should be analyzed for total concentrations of common anions and cations.

[3] Anchor Environmental, LLC, 2007, "Draft Field Sampling Plan, Cyanide Surface Water Investigation, Gasco Groundwater Source Evaluation," July, a sampling plan prepared on behalf of the Northwest Natural Gas Company.

NEXT STEPS

DEQ is not requesting NWNG to revise and resubmit either document at this time. DEQ does expect NWNG to provide written confirmation that the conditions and comments communicated in this letter will be fully incorporated into the scope of work for both projects. NWNG's confirmation letter should: 1) include revised figures showing the additional seepage meter and piezometer locations required by DEQ, and 2) be submitted before field work is initiated.

DEQ acknowledges and appreciates NWNG's expansion of the work in the Willamette River to include additional seepage meter deployments and TZW monitoring. Please contact me with questions regarding this letter.

Sincerely,

Dana Bayuk
Project Manager
Cleanup & Portland Harbor Section

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ECSI No. 84 File